Appendix 8: Drainage Strategy Report for proposed Tuners Lane site, Quad Consult, August 2018

QuadConsult Limited
Columbus House
Village Way
Greenmeadow Springs Business Park
Cardiff
CF15 7NE

Tel: +44 (0)29 2077 9644
email: contactus@quadconsult.co.uk
Web: www.quadconsult.co.uk

Proposed Residential Development, Crudwell

Report

On

Drainage Strategy

For

WebbPaton Rural and Commercial Valuers

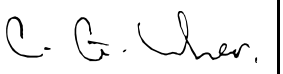
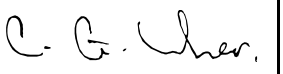
Date	Aug 2018
Project no.	18248
Revision	0

QuadConsult Limited registered in England and Wales reg.no. 06880193
Columbus House, Village Way
Greenmeadow Springs Business Park
Cardiff, CF15 7NE

Proposed Residential Development, Crudwell

Drainage Strategy

Document Control

Responsible for	Job Title	Name	Date	Signature
Content	Project Engineer	Mike Pope	02/08/2018	
Checked	Director	Chris Usher	02/08/2018	
Approval	Director	Chris Usher	02/08/2018	
Copyright:	QuadConsult ©2018	Document Reference:	18248 Rev 0	
Signatories in this approval box have checked this document in line with the requirements of QuadConsult QMS Procedures				

Revision History

Revision	Date	Purpose/Status	Approved
0	2nd August 2018	Issue	CGU
1			
2			
3			
4			
5			
6			

Distribution

	Function Title	Company	Name
1	Director	WebbPaton	George T Paton
2	Director	Tonks Consulting	Cark Tonks
3			

CONTENTS

List of Figures

References

NPPF	National Planning Policy Framework
	British Geological Survey Historic Borehole Database – Geology of Britain Viewer
NPPG	The National Planning Practice Guidance
C753	The SuDS Manual -2015

Abbreviations

Ha	Hectares
l/s	Litres per Second
CC	Climate Change
A.O.D.	Above Ordnance Datum
Q_{BAR}	Mean Annual Maximum Flow Rate

1.0 INTRODUCTION

1.1 QuadConsult Ltd has been appointed by WebbPaton Rural and Commercial Valuers to prepare a drainage strategy to assess the proposed site to the north of Turners Lane for residential use.

1.2 The purpose of this report is to:

1.2.1 Review the existing site drainage arrangement and determine existing discharge rates based on found characteristics.

1.2.2 Prepare an overall drainage strategy for both storm and foul flows, including any attenuation requirements and discharge recommendations.

2.0 SITE LOCATION AND DESCRIPTION

2.1 The site is in the north of the village of Crudwell, Malmesbury (ST952930) and accessed from Turners Lane on its southern boundary. The development site area is circa 3.2ha and is currently open agricultural fields enclosed by mature hedgerows and entirely greenfield in nature. It falls from circa 108m A.O.D. in the north to 98m A.O.D. in the southeast corner.

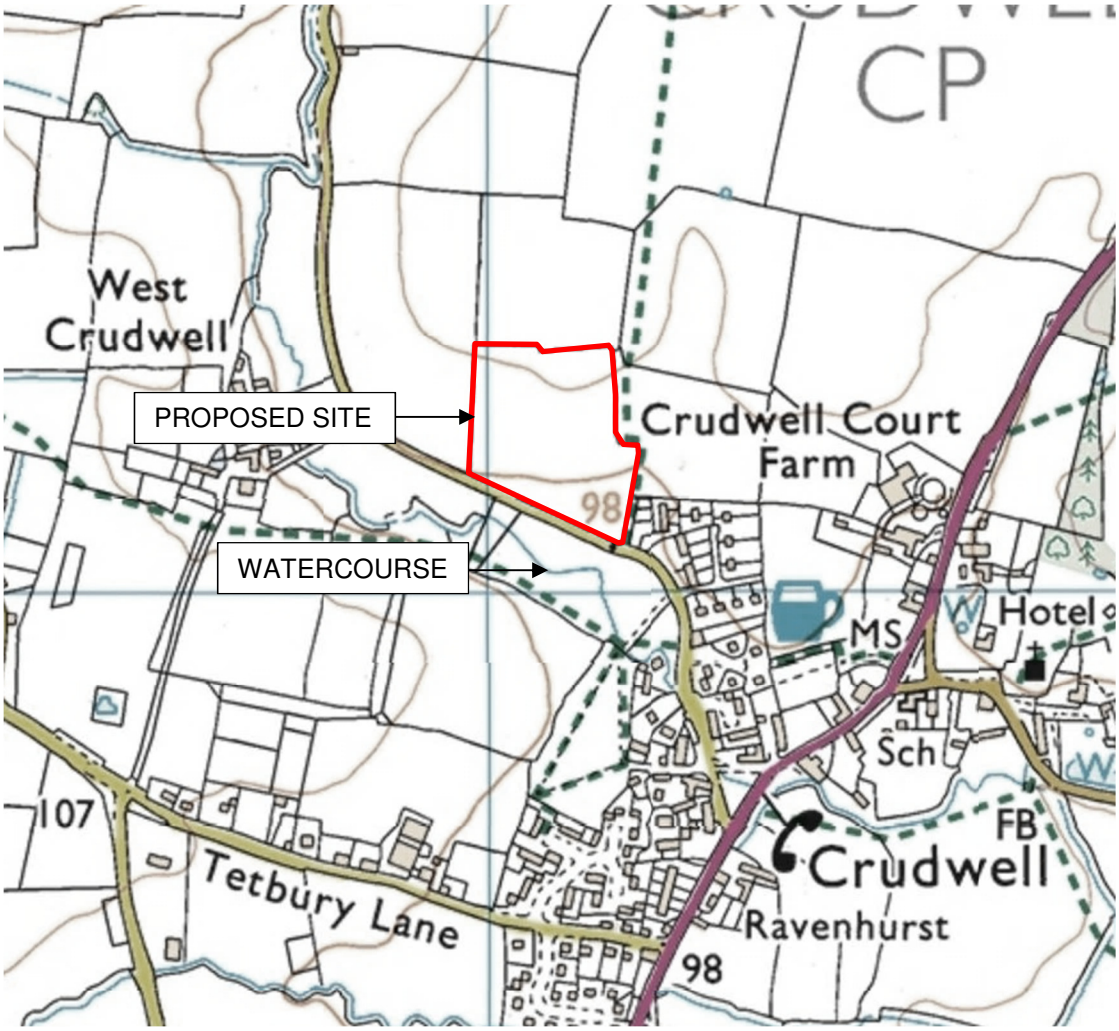


Figure 1 – Site Location Plan
© Ordnance Survey

3.0 EXISTING SURFACE WATER DRAINAGE

3.1 There is currently no known formal drainage within the site boundary.

3.2 Nearby historic borehole records (see appendix 2) indicate that infiltration is likely to be limited, with clays found within the residential development to the immediate east of the site and perched water 1.2m below ground level within Crudwell Lane to the west.

3.3 The site is therefore believed to drain via overland flow, with the topography indicating this occurs generally from the north to the south of the proposed site. From where the accepting watercourse to the south of Turners Lane conveys flows eastwards towards Swill Brook and Cotswold Water Park beyond. Refer to *figure 2* below.

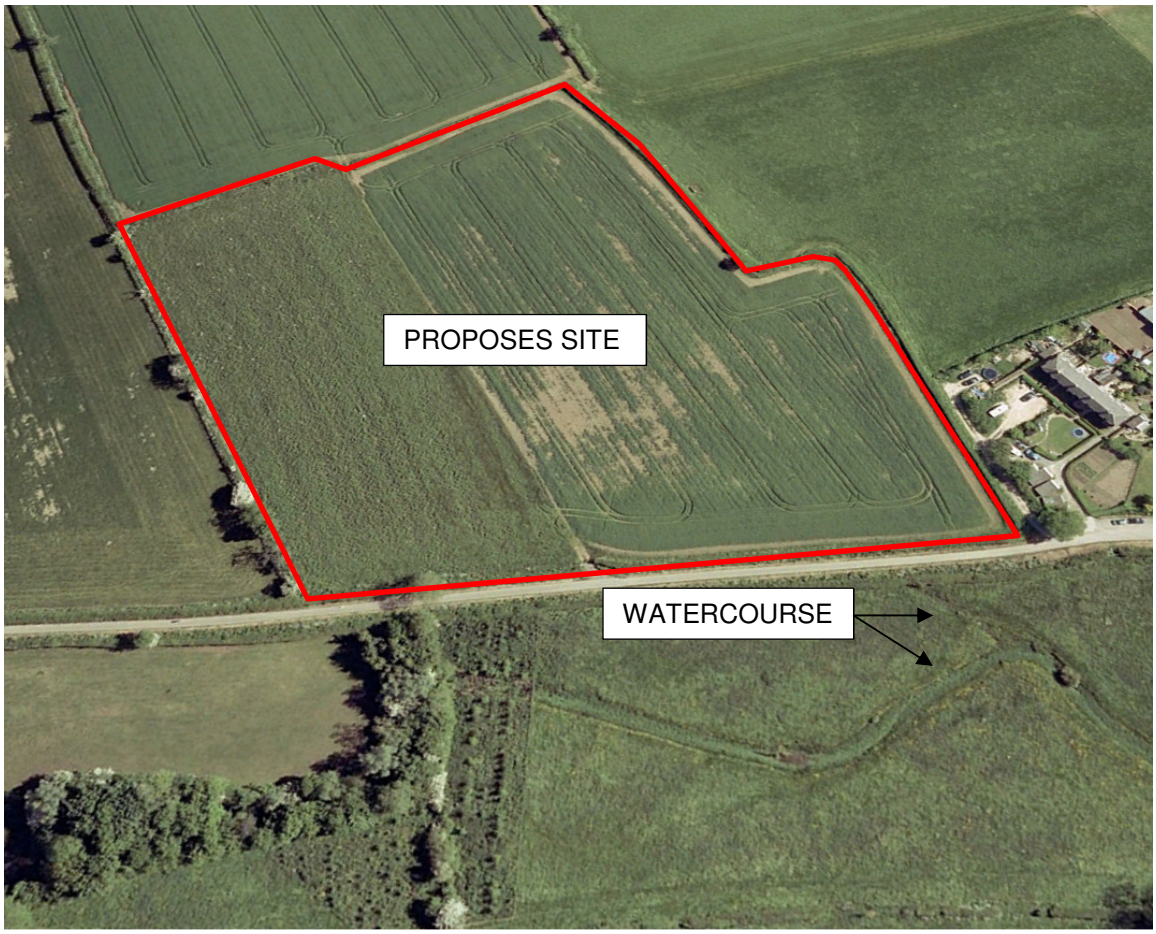


Figure 2 – Areal view of proposed site and watercourse

3.4 The existing runoff rates have been calculated in appendix 1 and summarised below:

Table 1 – Existing Runoff Rates

Return Period (years)	Runoff Rate (l/s)
1	9.9
30	24.3
100	30.8
Q_{BAR*}	12.7

** Annual mean maximum flow rate.*

4.0 THE PROPOSED DEVELOPMENT

4.1 The proposed development consists of a mixed residential site. The site arrangement has not been finalised at time of writing and it has therefore been assumed that the final layout will incorporate a circa 60% impermeable area (1.92ha) for calculation purposes.

4.2 The site is to be accessed from Turners Lane from the south.

4.3 Although outside of the scope of this report, the Environment Agency flood maps for planning were consulted and the site lies entirely within Flood Zone 1 (appendix 4).

5.0 THE PROPOSED SURFACE WATER DRAINAGE

5.1 There are currently multiple policies, guidance documents and best practice frameworks at both national and local level, such as the National Planning Policy Framework (NPPF), the National Planning Practice Guidance (NPPG), The SuDS manual (C753) and other local Strategic Flood Risk Assessments (SFRA). These all contribute to the governance of surface water drainage.

5.2 Paragraphs 080 of NPPF and 3.2.3 of C753 among others detail the priorities in which surface water is to be discharged. The destination for surface water that is not collected for used should be prioritised in the following order:

5.2.1 Infiltration
5.2.2 Discharge to Surface Waters
5.2.3 Discharge to Surface Water Sewer
5.2.4 Discharge to Highway drain or another drainage system
5.2.5 Discharge to Combined Sewer

5.3 The above documents also outline the control measures for the volume of runoff discharged from the site, ensuring runoff is at or close to source and that there are no adverse impacts from the development downstream over the lifetime of the development.

5.4 The borehole records in appendix 2 indicate that infiltration is not possible due to perched water and clay deposits in the vicinity. However, this will need to be confirmed with further site investigation, including BRE compliant soakaway tests to formally exclude.

5.5 It is therefore proposed to discharge to the watercourse to the south of the site utilising the existing conveyance method (to be confirmed).

5.6 To manage the increased flows from the new impermeable areas of the development, a limiting discharge from all positively drained areas to the pre-development Q_{BAR} rate of 12.7l/s is recommended (*Table 1*). Attenuating the flows up to and including the 100-year storm duration with 40% climate change as outlined in NPPF.

5.7 The total attenuation volumes required have been calculated in Appendix 3 and detailed in Table 2 below:

Table 2 – Estimated Attenuation Volumes

Return Period (years)	Volume (m^3)
30	600
100 with 40%CC	700

5.8 Although outside of the scope of this report, the Environment Agency flood maps for planning were consulted and the site lies entirely within Flood Zone 1 (appendix 4).

5.9 There is however flooding downstream which must be considered, and it is recommend that any new outfall on the south side of the road is considered as submerged as part of detailed design.

5.10 Limiting the site runoff rate to Q_{BAR} however, will have the benefit of offering betterment downstream by both reducing runoff from all flood events up to and including the 1 in 100-year storm duration (with 40% climate change).

5.11 A schematic of the proposed surface water and foul arrangements can be found in Appendix 5.

6.0 THE PROPOSED FOUL DRAINAGE

6.1 Foul sewer records were not available at the time of writing. It is however assumed that the established residential housing at Days Court, Brookside and Turners Lane within the north of Crudwell village are believed to be serviced by Wessex Water.

6.2 It is proposed that Wessex Water is engaged to secure advice as to the suitable point of connection and rate to this network as a matter of priority.

6.3 The road network within the vicinity is reasonably flat at circa 100m A.O.D. throughout. As such, the invert levels of the existing infrastructure would govern the suitability of a gravity connection.

6.4 Should a gravity connection not be feasible due to the existing infrastructure being too shallow for the above, or should the sewer capacity be limiting, a pumping station to the south of the site with telemetry control could provide a suitable alternative.

7.0 SUMMARY AND RECOMMENDATIONS

7.1 The site currently appears to drain to the watercourse to the south. With limited soakage potential based on local historic borehole information. It is therefore proposed that the existing greenfield runoff regime is maintained with the site discharging to the watercourse at the pre-development Q_{BAR} rate of 12.7l/s.

7.2 The watercourse to the south is shallow and layout considerations should be given to ensure that any storm water infrastructure is at a suitably shallow depth to enable access the watercourse. Ponds / basins may assist in keeping the outfall level shallow and help avoid the raising of the ground level that may occur with below ground systems (such as cellular storage).

7.3 Formal foul infrastructure is believed to service the neighbouring residential area and early engagement is recommended with Wessex Water to confirm means of communication and availability within its network.

7.4 Should the existing infrastructure be at a depth which is prohibitive to access via a gravity foul connection, a pumping station may be required. Should this be the case, it is recommended that layout considerations be given to ensure appropriate access arrangement and habitable building off-set requirements are catered for.

7.5 The site is outside of all known flood risks, however, should a new outfall be required within the watercourse channel which does flood, it is recommend that it be considered as a 'submerged outlet' to ensure efficient working in all conditions.

APPENDIX 1
EXISTING RUNOFF RATES

ICP SUDS Mean Annual Flood

Input

Return Period (years)	2	Soil	0.400
Area (ha)	3.200	Urban	0.000
SAAR (mm)	800	Region Number	Region 8

Results l/s

QBAR Rural	12.7
QBAR Urban	12.7
Q2 years	11.2
Q1 year	9.9
Q30 years	24.3
Q100 years	30.8

APPENDIX 2
HISTORIC BOREHOLE DATA

BGS ID: 398174
BGS REF: ST99SE8
NATIONAL GRID: 395270,192970 (east of site / north of Days Court)

ST 99 SE/8
9527. 9297.
Confidential Copy — Quarter Sheet 1" 252
Declassified on authority of J. Day 7/2/1968 252/72

Geological Classification	Description	Thickness		Depth	
	On behalf of Messrs J. Mullins, Manvers St. Bath.				
	Turners Lane Housing site, Crudwell.* for Malmesbury R.D.C. 1936				
F.M.	Top soil		6		
	Yellow clay	3	6	7 (2.1m)	
	Yellow stone	6		10 (3.1m)	
	" " & clay beds	4		14 (4.3m)	
	Grey stone	4		18 (5.5m)	
	Yellow stone & beds of blue clay	37		55 (16.8m)	
G.O.	Brown stone	20		75 (22.9m)	
	White stone	12		87 (26.5m)	
	Blue clay & stone	3		90 (27.5m)	
	White Limestone	10		100 (30.5m)	

BWS APR 1968

Water struck 55'–75' b/s
R.W.L. 37' b/s.
Yield (est) 1000 gals in 8 hrs.

Tubes: 100' x 6" o/d., perf. from 50' to 70'

* [illegible] Crudwell [ST 9527 9297]

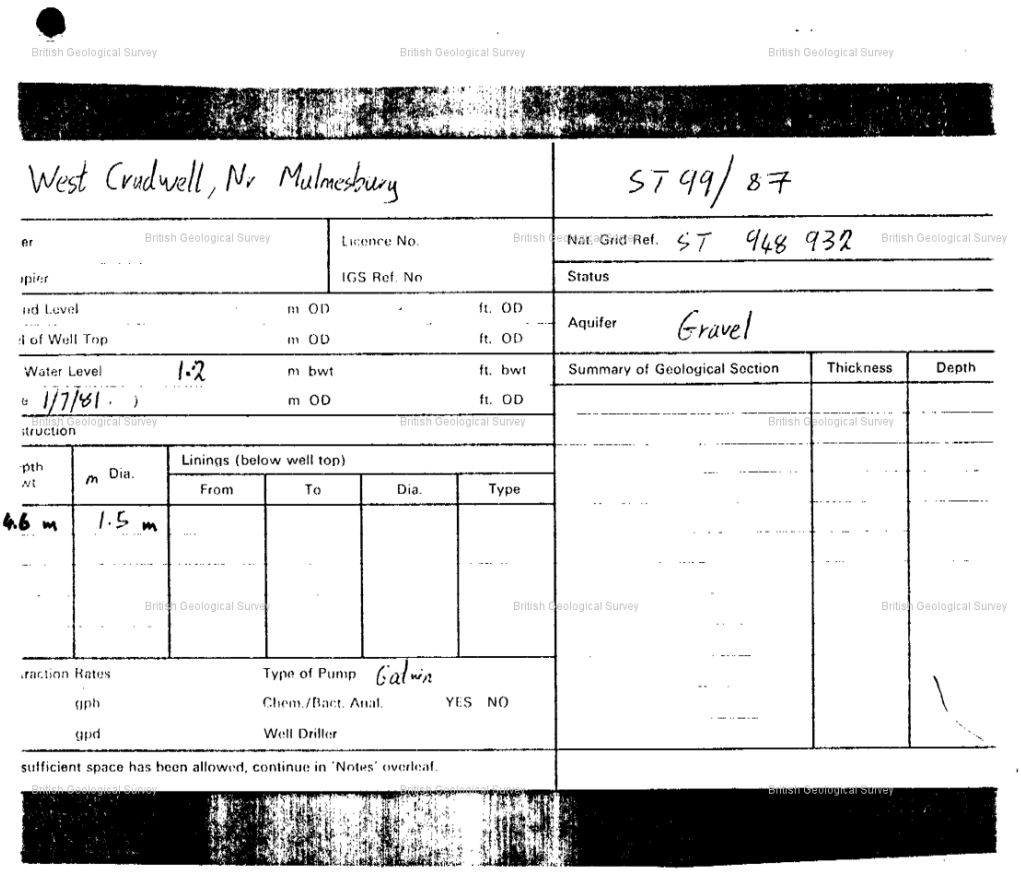
Turners Lane Housing Site.
C.D + 32)
Supplies whole village
Visited, notes in Wilts 3 SE-E
C.B. 24.6.46

Made by H.J. Godwin,
for J. Mullins, Bath.

Yield 1,000 g.p.h. – information from Malmesbury R.D.C.
C.B. 5.VII.49

Information from WB letter dtd 6.11.57. Source ceased to be used from end of 1957.
[illegible] [illegible]

BGS ID: 398225
BGS REF: ST99SW24
NATIONAL GRID: 394800,193200 (at Crudwell Lane)



West Crudwell, Nr Malmesbury

ST 99/ 87

er
pier

Licence No.
IGS Ref. No

Nat. Grid Ref. ST 948 932
Status

ıd Level m OD ft. OD
l of Well Top m OD ft. OD
Water Level 1.2 m bwt ft. bwt
e 1/7/61) m OD ft. OD
ıtruction

pth / vt	m Dia.	Linings (below well top) From	To	Dia.	Type
4.6 m	1.5 m				

Aquifer Gravel

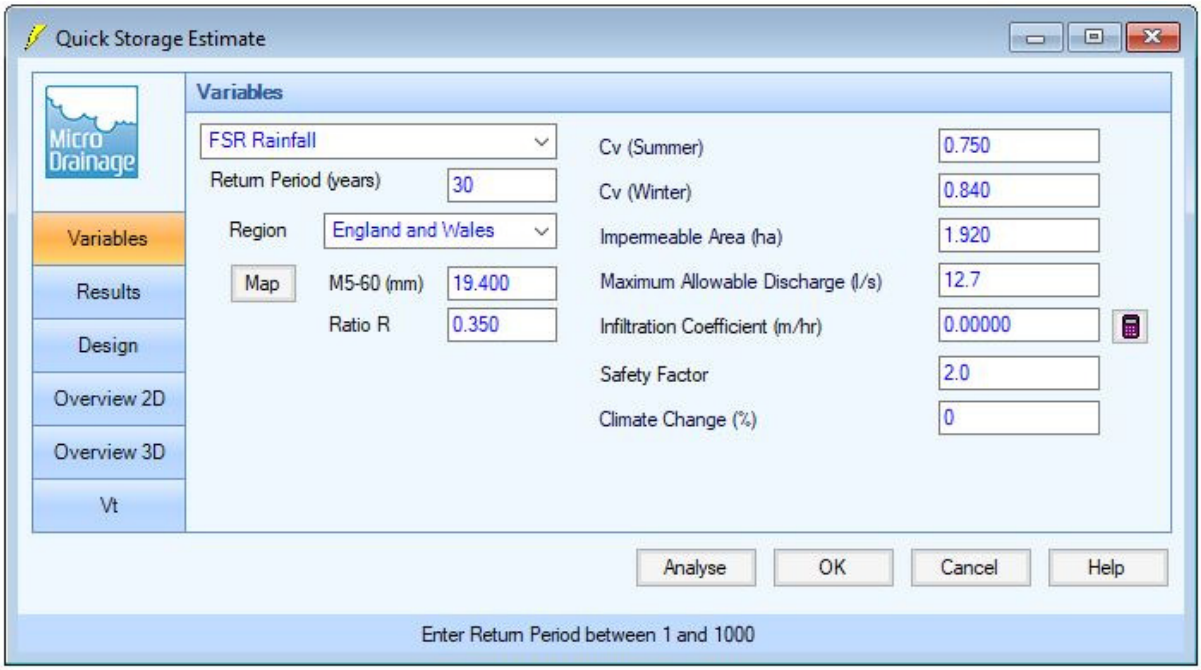
Summary of Geological Section	Thickness	Depth

ıraction Rates
gph
gpd

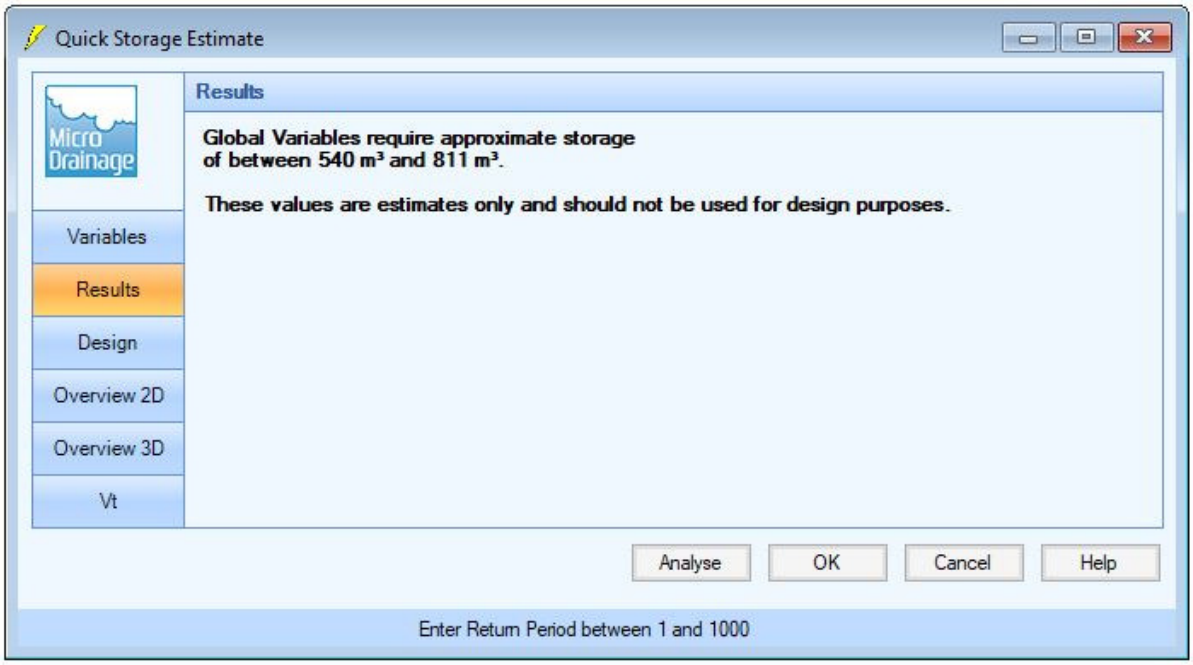
Type of Pump Galwin
Chem./Bact. Anal. YES NO
Well Driller

sufficient space has been allowed, continue in 'Notes' overleaf.

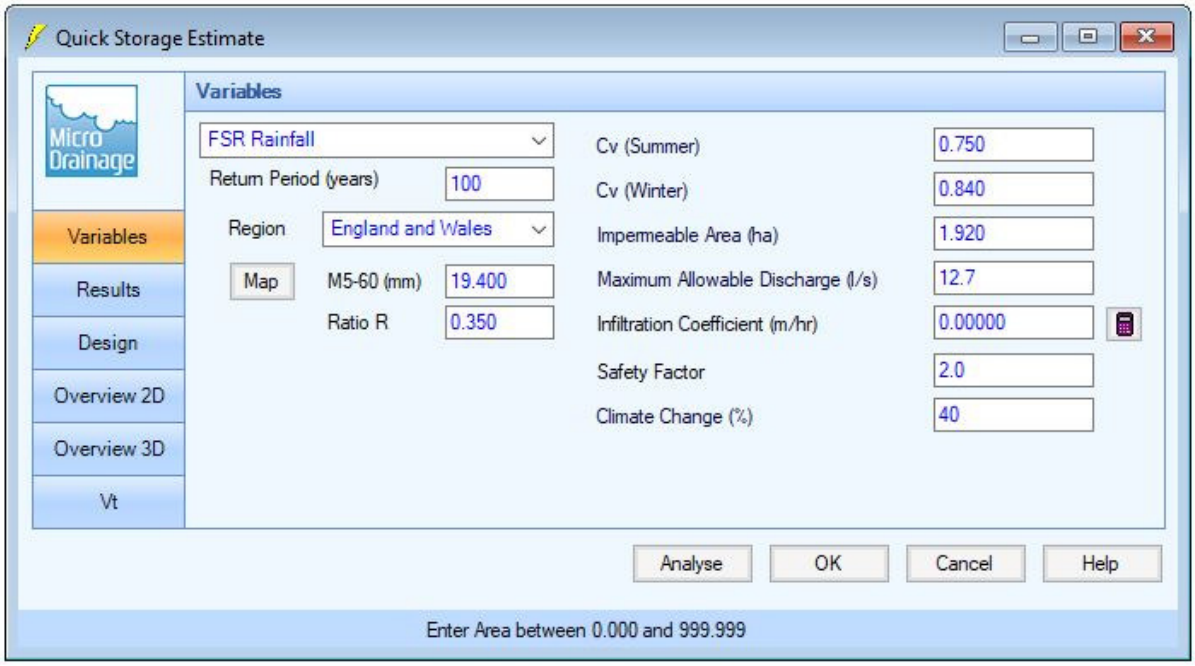
APPENDIX 3
ATTENUATION VOLUME ESTIMATION



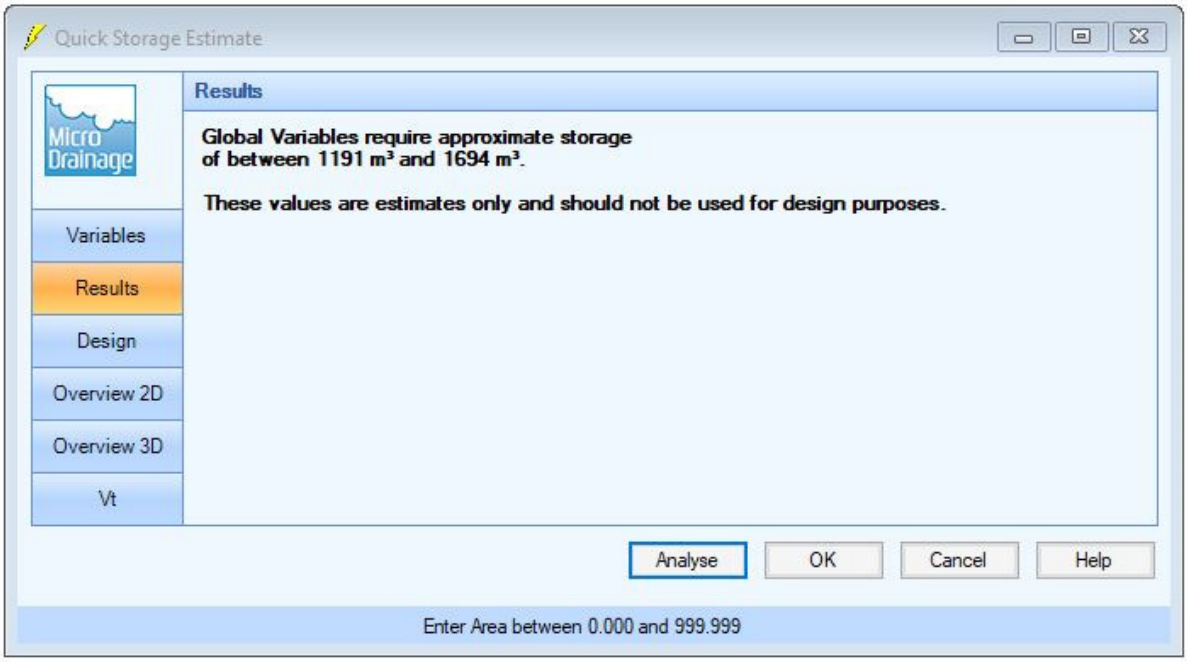
30 YEAR ATTENUATION ESTIMATION – VARIABLES



30 YEAR ATTENUATION ESTIMATION - RESULTS

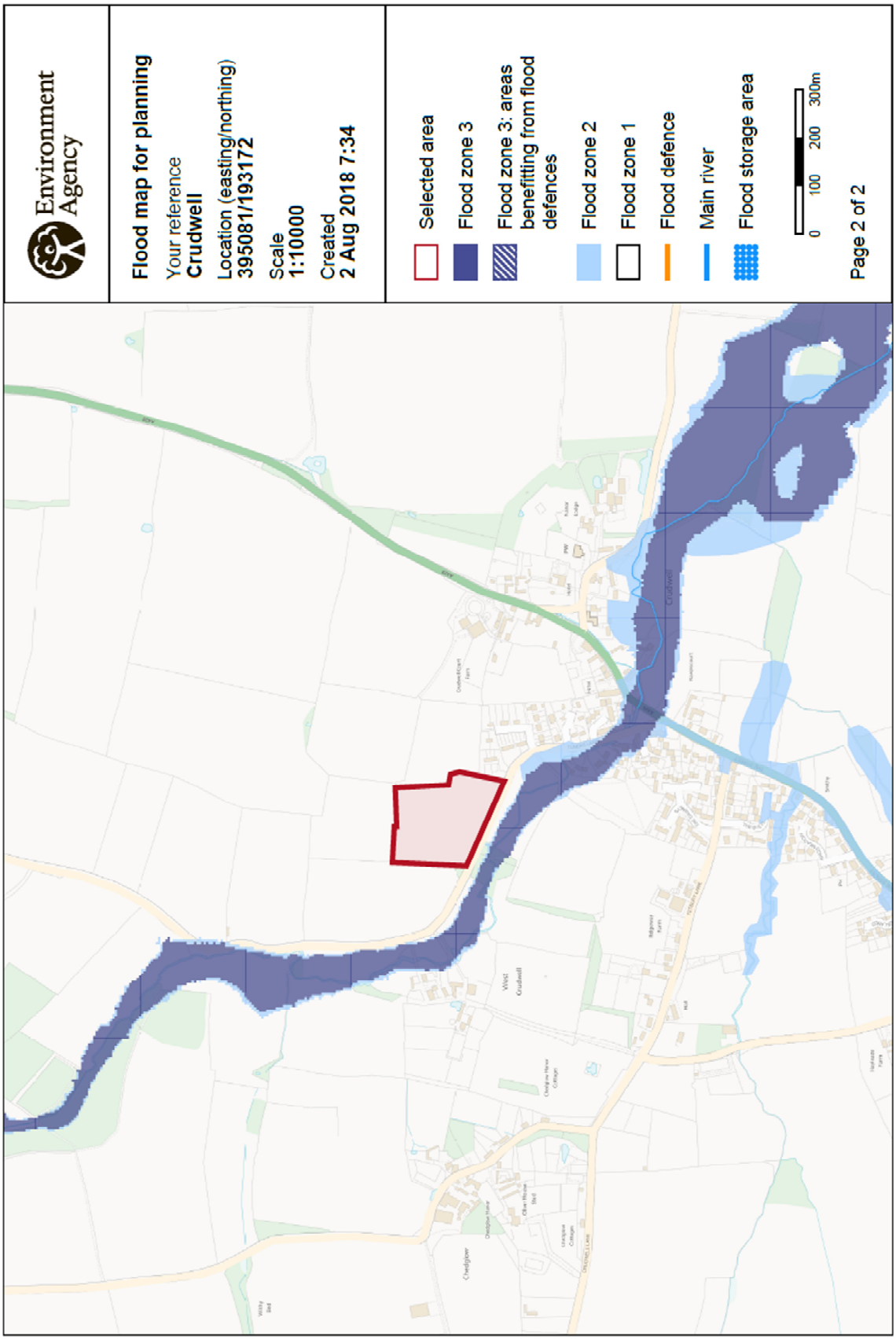


100 YEAR + 40%CC ATTENUATION – VARIABLES

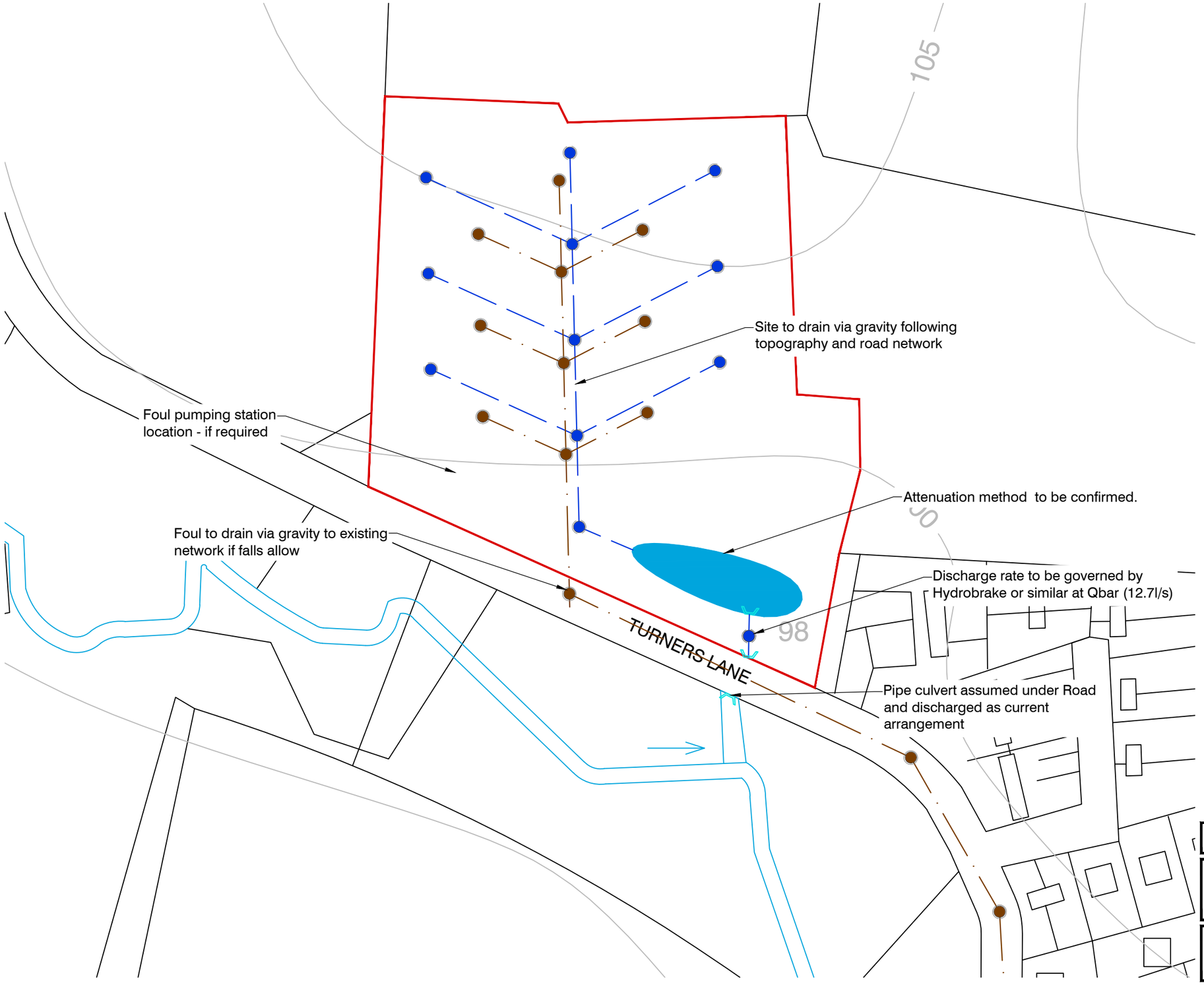


100 YEAR + 40%CC ATTENUATION – RESULTS

APPENDIX 4
EA FLOOD MAP FOR PLANNING


Environment Agency
Flood map for planning
Your reference
Crudwell
Location (easting/northing)
395081/193172
Scale
1:10000
Created
2 Aug 2018 7:34
Selected area
Flood zone 3
Flood zone 3: areas benefitting from flood defences
Flood zone 2
Flood zone 1
Flood defence
Main river
Flood storage area
0 100 200 300m
Page 2 of 2
© Environment Agency copyright and / or database rights 2018. All rights reserved. © Crown Copyright and database right 2018. Ordnance Survey licence number 100024198.

APPENDIX 5
DRAINAGE SCHEMATIC



Legend

- Illustrative SW Network
- Illustrattive FW Network
- Headwall
- Pond / Basin

NOTE - FOR ILLUSTRATIVE PURPOSES ONLY. SUBJECT TO ADDITIONAL INVESTIGATION AND INFORMATION.

Rev	Date	Description	By

Dimensions to be verified on site.
This drawing should not be scaled. Use figured dimensions only
Any discrepancies should be referred to the Engineer prior to work being put in hand.
This drawing is copyright.

Drawing Status

DISCUSSION

QuadConsult Limited
Columbus House, Village Way
Greenmeadow Business Park
Cardiff
CF15 7NE

029 2077 9644
contactus@quadconsult.co.uk
www.quadconsult.co.uk

QuadConsult ENGINEERS IN PARTNERSHIP
Consulting Civil & Structural Engineers

Client: webbpaton

Project: Crudwell

Title: DRAINAGE SCHEMATIC

Designed by	Drawn by	Checked by	Date	Scales @ A3 size
MP	MP	CGU	AUG 18	NTS

Project No	Drawing No	Revision
18248	SK100	0

File name: 18248_SK100 - Drainage Schematic.dwg

Appendix 9: Transport Report for proposed Tuners Lane site, CTC, August 2018

webbpaton

carl TONKS consulting

Land at Turner's Lane, Crudwell

Technical Note 1;

Proposed Residential Allocation;

Transportation Issues Arising

1. INTRODUCTION

1.1 **cTc** is commissioned by webbpaton to advise in regard to highways and transport issues arising in respect of an aspiration for residential development allocation of an agricultural site adjacent to Turner's Lane in Crudwell, Malmesbury. This Technical Note describes **cTc**'s investigations, which have comprised visiting the site to observe first hand the adjacent highway geometry, transport opportunities and location in respect of nearby locations and facilities generating frequent travel demand.

1.2 This advice is based on **cTc**'s considerable experience of promoting similar sites throughout the UK and in particular in Wiltshire, Gloucestershire and Somerset. No discussions have been held at this stage with officers of Wiltshire Council as local Highway Authority.

2. SITE LOCATION AND SURROUNDING INFRASTRUCTURE

2.1 The site is located on the northern edge of Crudwell, a village adjacent to the A429 north of Malmesbury. South of Malmesbury the A429 connects with the M4 motorway at Junction 15 and to the north it links via Kemble to the A433 and thence on to Cirencester. It thus serves as an important north-south connection linking Chippenham with the southern and central Cotswolds area.

2.2 Within Crudwell the carriageway width of the A429 measures typically 7.3 – 7.5m, it is street lit and is subject to a 30mph speed limit. Within the vicinity of its junction with Turner's Lane, the A429 benefits from footways on both sides of the carriageway of widths typically order of 2.0m on the western side and a little less on the eastern side.

2.3 Adjacent to its junction with Turner's Lane and at a distance of 375m from the site's southern corner, the A429 has bus stops serving both directions of travel, known as the Old Post Office stops (outside; northbound and opposite; southbound). The southbound (opposite) stop benefits from a layby and a shelter displaying service information including timetables. Services stopping at these stops are summarised in Table 2.1, below.

Table 2.1; Bus Services stopping at Crudwell Old Post Office stops

Service number	Route	Approximate Frequency		
		Mon – Fri	Sat	Sun
93 / 93A	Malmesbury - Charlton - Crudwell - Somerford Keynes - Cirencester	Every 2 hours between 07:01 and 18:22	Every 2 hours between 08:00 and 17:45	-

2.4 A traffic signal controlled pedestrian, pelican crossing is located a short distance south of the junction of Turner's Lane with the A429, permitting safe and convenient crossing between the north and southbound bus stops and allowing ease of connection between Turner's Lane and the southbound stop. The above confirms ready accessibility by sustainable means to nearby urban areas providing facilities including employment, retail, secondary education and leisure.

2.5 At the junction of Turner's Lane with A429, visibility to the left is constrained by a wall which immediately abuts the edge of carriageway. At this stage **cTc** has not confirmed the limit of highway adoption in this vicinity, however, it is likely that the adopted highway limit lies contiguous with the stone wall north of the junction. The wall is only low and provides little physical encumbrance to the visibility splay achieved at this location, as from a driver's eye height of 1.05m it is easily possible to achieve clear visibility of the northern carriageway over the top of the wall. Land behind the wall appears to comprise public open space which is highly unlikely to be removed from public availability and realistically is likely to be able to be relied upon for highway visibility purposes. **cTc** has measured the visibility splay to the left (north) without overseeing the wall at 2.4m x 16m, but with overseeing of the adjacent wall at 2.4m x 108m.

2.6 To the right (south), substantial visibility is available, measured at 2.4m x 315m.

2.7 In a 30mph speed limit and in light of research in Manual for Streets, visibility splays of the order or 2.4m x 45m are typically considered acceptable and safe. Consequently it is clear that no operational concerns can be attached to the minor increase in traffic demand through this junction which is likely to result from the proposed allocation of up to 30 dwellings on this site.

2.8 Within Crudwell, although a rural village, much of the development west of the A429 comprises relatively modern construction and caters well for pedestrians, with footways typically provided to modern design standards on both sides of the road and street lighting provided throughout.

2.9 Turner's Lane has a typical carriageway width of the order of some 4.5 – 5.0m between the junction with the A429 and the end of the 30mph speed limit, from where it heads into the adjacent countryside. In its southern portion, Turner's Lane has a footway on the western side only, although heading north this transfers to the eastern side, adjacent to which is located small areas of housing. In this area, footway width is typically around 1.5m. It is street lit, although lights are sporadic and attached to communication poles; there are no bespoke lighting columns.

2.10 At the northern periphery of the existing developed area of Crudwell, Turner's Lane benefits from a layby on its eastern boundary and this is seen to be well used, predominantly by vehicles associated with the adjacent houses. The footway currently stops at the southern end of the layby.

2.11 Immediately north of the layby a small row of residential garages serves adjacent properties and is sandwiched between two access roads; the southernmost being of concrete construction and the northernmost being unsurfaced. The northernmost of these runs contiguous with the site's southern boundary.

2.12 At the site's south-western corner, the speed limit changes from 30mph to National Speed Limit and the site's western boundary sits at the back of the existing mature hedgerow. Site frontage is some 190m, over which the site owner has control of all land to the rear of the highway, permitting relatively long visibility splays to be provided and maintained for an access on this frontage. Approximately 110m north of the site's south-western corner is located an existing agricultural gateway of width 4.8m. This accesses the field which is the subject of this promotion and visible tyre tracks across the field to and from another gate into the field beyond, to the north, confirm that this gateway sees regular usage by agricultural vehicles.

2.13 Throughout the site frontage, the lane caters only for single track use, with carriageway widths varying between 2.7m and 3.3m. Highway verges of between 1.3m and 2.9m are provided, enabling some carriageway widening should that be required.

3. ACCESSIBILITY OF VENUES AND FACILITIES

3.1 Although Crudwell comprises a small, rural village, numerous facilities are available. On **cTc**'s visit, the following were noted;

- Hotel / restaurant (x2)
- Public house (x2)
- Primary school
- Pre-school
- Post office
- Village Hall
- Playground
- Mobile library
- Church
- Picnic areas

3.2 From the above it is clear that given its small size, Crudwell is well catered for in regard to leisure, educational and social facilities within the village and accessible on foot and by bicycle. Further facilities including secondary education, employment and bulk retail are conveniently accessible by bus, in both Malmesbury and Cirencester, providing a choice of modes of transport for regular journeys associated with this site.

4. SITE PROMOTION AND FORECAST TRIP GENERATION

4.1 The site is promoted for development of up to 30 dwellings, contiguous with Crudwell's northern residential edge. Access will be provided from Turner's Lane and substantial site frontage is available over which this can be achieved. Although the National Speed Limit applies, due to the constrained width of the lane to the north, vehicle speeds have been qualitatively observed by **cTc** to be slow and in due course a speed survey would permit quantification of safe visibility splays in regard to access into the field.

4.2 cTc's observations on site have confirmed that visibility is available from much of the suite frontage, extending to the south to a degree around the gentle bend on Turner's Lane, to a point broadly adjacent to the southern end of the parking layby. From the site corner to the southern end of the layby measures 63m, hence as an example, locating an access midpoint between the southern end of the visibility envelope (south of the layby) and the northern limit of the site's frontage would provide an available visibility envelope (subject to hedge trimming) of 253m (63m + 190m), or splays extending up to 126.5m in each direction.

4.3 Applying Manual for Streets 2(MfS2) parameters as an onerous scenario confirms that on a flat road, a visibility splay of 2.4m x 126.5m is safe for passing vehicle speeds of up to 56mph. Using the more cautious parameters set by Design Manual for Roads and Bridges (DMRB) identifies safe approach speeds of up to 45.3mph. From **cTc**'s observations and having driven this lane on several occasions it is clear that 85th percentile traffic speeds will not be of this level, hence **cTc** is content that safe visibility splays can be provided.

4.4 The existing footway stops some 63m short of the site frontage, however, sufficient highway verge exists, mainly on the western side, to permit the carriageway to be shifted over slightly in order to provide additional footway past or through the layby. Alternatively, the onstreet parking currently catered for by this layby could be relocated a short distance into the site's southern corner where it would remain convenient for local residents and be slightly removed from the lane, hence leaving parked cars less vulnerable to passing traffic in addition to being overlooked.

4.5 Interrogation of the TRICS database has permitted forecast trip generation for a development of 30 dwellings in a rural environment as summarised in Table 4.1, below and the full TRICS report is contained at Appendix A.

Table 4.1; Summary of TRICS calculation of forecast trip generation of 30 dwellings in a rural village

Period	Mode	Trip rates per household			Scale (hh)	Trips		
		In	Out	Total		In	Out	Total
AM Peak	Ped	0.039	0.088	0.127	30	1	3	4
	Cycle	0.000	0.029	0.029		0	1	1
	Bus	0.000	0.006	0.006		0	0	0
	Car pass'	0.185	0.614	0.799		6	18	24
	Car driver	0.130	0.406	0.536		4	12	16
PM Peak	Ped	0.075	0.039	0.114		2	1	3
	Cycle	0.023	0.000	0.023		1	0	1
	Bus	0.010	0.000	0.010		2	1	3
	Car pass'	0.562	0.153	0.715		17	5	21
	Car driver	0.399	0.107	0.506		12	3	15

4.6 The above confirms a maximum of only 16 vehicle movements generated by the proposal during the highway peak hour. At an average of approximately one vehicle every 4 minutes, this is not a material impact on the existing lowly trafficked rural network, hence from the above consideration it is clear that the allocation of up to 30 dwellings on this site adjacent to Turner's Lane would raise no traffic or highway concerns in regard to either road safety or free-flow of traffic.

5. SUMMARY AND CONCLUSION

5.1 cTc is commissioned to advise in regard to traffic, transport and highways matters pertaining to the proposed allocation of a site adjacent to Turner's Lane in Crudwell, Malmesbury for development of up to 30 dwellings.

5.2 The site is located adjacent to the northern edge of Crudwell, a small village on the A427 between Malmesbury and Cirencester. Despite being only a small, rural village, Crudwell is provided with various facilities within walking and cycling distance of the site. Bus services to both Malmesbury and Cirencester facilitate journeys to work, secondary education, retail and leisure venues by sustainable modes.

5.3 Pedestrian movement around Crudwell is well catered for, with generally modern designed footway, street lighting and pedestrian crossings provided, enabling safe and convenient access to the facilities provided.

5.4 Forecast traffic generation of the proposed allocation is low and easily accommodated on the adjacent highway network with no potentially material injurious impact on highway operation.

5.5 From the above it is clear that there are no defensible highway reasons for objection to the proposed allocation of this site to provide up to 30 dwellings.

Client:		webbpaton	
Project Name:		Crudwell	
Project Number:		2018-F-028	
Report Title:		Technical Note 1	
Created by:	Carl Tonks	**Date:**	August 2018
Proofed by:	Jacqueline Ireland	**Date:**	August 2018
Approved by:	Carl Tonks carl@tonks-consulting.co.uk	**Date:**	August 2018

APPENDICES

APPENDIX A

TRICS REPORT

Calculation Reference: AUDIT-757701-180803-0823

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	SC	SURREY	1 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
	SF	SUFFOLK	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	2 days
08	NORTH WEST		
	CH	CHESHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
Actual Range: 10 to 71 (units:)
Range Selected by User: 10 to 100 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 27/11/17

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	3 days
Thursday	2 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town	8

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	7
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3	8 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	2 days
10,001 to 15,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	2 days
50,001 to 75,000	1 days
75,001 to 100,000	3 days
100,001 to 125,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	6 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	8 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 CH-03-A-09 TERRACED HOUSES CHESHIRE
GREYSTOKE ROAD
MACCLESFIELD
HURDSFIELD
Edge of Town
Residential Zone
Total Number of dwellings: 24
Survey date: MONDAY *24/11/14* *Survey Type: MANUAL*

2 ES-03-A-02 PRIVATE HOUSING EAST SUSSEX
SOUTH COAST ROAD
PEACEHAVEN

Edge of Town
Residential Zone
Total Number of dwellings: 37
Survey date: FRIDAY *18/11/11* *Survey Type: MANUAL*

3 NF-03-A-03 DETACHED HOUSES NORFOLK
HALING WAY
THETFORD

Edge of Town
Residential Zone
Total Number of dwellings: 10
Survey date: WEDNESDAY *16/09/15* *Survey Type: MANUAL*

4 NY-03-A-10 HOUSES AND FLATS NORTH YORKSHIRE
BOROUGHBRIDGE ROAD
RIPON

Edge of Town
No Sub Category
Total Number of dwellings: 71
Survey date: TUESDAY *17/09/13* *Survey Type: MANUAL*

5 NY-03-A-11 PRIVATE HOUSING NORTH YORKSHIRE
HORSEFAIR
BOROUGHBRIDGE

Edge of Town
Residential Zone
Total Number of dwellings: 23
Survey date: WEDNESDAY *18/09/13* *Survey Type: MANUAL*

6 SC-03-A-04 DETACHED & TERRACED SURREY
HIGH ROAD
BYFLEET

Edge of Town
Residential Zone
Total Number of dwellings: 71
Survey date: THURSDAY *23/01/14* *Survey Type: MANUAL*

7 SF-03-A-05 DETACHED HOUSES SUFFOLK
VALE LANE
BURY ST EDMUNDS

Edge of Town
Residential Zone
Total Number of dwellings: 18
Survey date: WEDNESDAY *09/09/15* *Survey Type: MANUAL*

8 SH-03-A-05 SEMI-DETACHED/TERRACED SHROPSHIRE
SANDCROFT
TELFORD
SUTTON HILL
Edge of Town
Residential Zone
Total Number of dwellings: 54
Survey date: THURSDAY *24/10/13* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
SH-03-A-06	Housing type.
WK-03-A-02	Coventry

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.094	8	39	0.344	8	39	0.438
08:00 - 09:00	8	39	0.130	8	39	0.406	8	39	0.536
09:00 - 10:00	8	39	0.146	8	39	0.188	8	39	0.334
10:00 - 11:00	8	39	0.133	8	39	0.162	8	39	0.295
11:00 - 12:00	8	39	0.149	8	39	0.159	8	39	0.308
12:00 - 13:00	8	39	0.159	8	39	0.166	8	39	0.325
13:00 - 14:00	8	39	0.166	8	39	0.172	8	39	0.338
14:00 - 15:00	8	39	0.159	8	39	0.149	8	39	0.308
15:00 - 16:00	8	39	0.266	8	39	0.169	8	39	0.435
16:00 - 17:00	8	39	0.279	8	39	0.149	8	39	0.428
17:00 - 18:00	8	39	0.399	8	39	0.107	8	39	0.506
18:00 - 19:00	8	39	0.253	8	39	0.123	8	39	0.376
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.333			2.294			4.627

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	10 - 71 (units:)
Survey date date range:	01/01/10 - 27/11/17
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	2

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TAXIS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.013	8	39	0.013	8	39	0.026
08:00 - 09:00	8	39	0.010	8	39	0.010	8	39	0.020
09:00 - 10:00	8	39	0.003	8	39	0.003	8	39	0.006
10:00 - 11:00	8	39	0.003	8	39	0.003	8	39	0.006
11:00 - 12:00	8	39	0.010	8	39	0.010	8	39	0.020
12:00 - 13:00	8	39	0.003	8	39	0.003	8	39	0.006
13:00 - 14:00	8	39	0.003	8	39	0.003	8	39	0.006
14:00 - 15:00	8	39	0.006	8	39	0.006	8	39	0.012
15:00 - 16:00	8	39	0.006	8	39	0.006	8	39	0.012
16:00 - 17:00	8	39	0.006	8	39	0.000	8	39	0.006
17:00 - 18:00	8	39	0.006	8	39	0.003	8	39	0.009
18:00 - 19:00	8	39	0.003	8	39	0.006	8	39	0.009
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.072			0.066			0.138

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL OGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.000	8	39	0.000	8	39	0.000
08:00 - 09:00	8	39	0.000	8	39	0.000	8	39	0.000
09:00 - 10:00	8	39	0.000	8	39	0.000	8	39	0.000
10:00 - 11:00	8	39	0.006	8	39	0.003	8	39	0.009
11:00 - 12:00	8	39	0.003	8	39	0.006	8	39	0.009
12:00 - 13:00	8	39	0.003	8	39	0.003	8	39	0.006
13:00 - 14:00	8	39	0.003	8	39	0.000	8	39	0.003
14:00 - 15:00	8	39	0.000	8	39	0.003	8	39	0.003
15:00 - 16:00	8	39	0.003	8	39	0.000	8	39	0.003
16:00 - 17:00	8	39	0.000	8	39	0.003	8	39	0.003
17:00 - 18:00	8	39	0.003	8	39	0.003	8	39	0.006
18:00 - 19:00	8	39	0.000	8	39	0.000	8	39	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.021			0.021			0.042

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PSVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.000	8	39	0.000	8	39	0.000
08:00 - 09:00	8	39	0.000	8	39	0.000	8	39	0.000
09:00 - 10:00	8	39	0.000	8	39	0.000	8	39	0.000
10:00 - 11:00	8	39	0.000	8	39	0.000	8	39	0.000
11:00 - 12:00	8	39	0.006	8	39	0.006	8	39	0.012
12:00 - 13:00	8	39	0.000	8	39	0.000	8	39	0.000
13:00 - 14:00	8	39	0.000	8	39	0.000	8	39	0.000
14:00 - 15:00	8	39	0.000	8	39	0.000	8	39	0.000
15:00 - 16:00	8	39	0.000	8	39	0.000	8	39	0.000
16:00 - 17:00	8	39	0.000	8	39	0.000	8	39	0.000
17:00 - 18:00	8	39	0.000	8	39	0.000	8	39	0.000
18:00 - 19:00	8	39	0.000	8	39	0.000	8	39	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.006			0.006			0.012

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL CYCLISTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.003	8	39	0.019	8	39	0.022
08:00 - 09:00	8	39	0.000	8	39	0.029	8	39	0.029
09:00 - 10:00	8	39	0.000	8	39	0.013	8	39	0.013
10:00 - 11:00	8	39	0.000	8	39	0.016	8	39	0.016
11:00 - 12:00	8	39	0.003	8	39	0.010	8	39	0.013
12:00 - 13:00	8	39	0.006	8	39	0.003	8	39	0.009
13:00 - 14:00	8	39	0.016	8	39	0.010	8	39	0.026
14:00 - 15:00	8	39	0.010	8	39	0.000	8	39	0.010
15:00 - 16:00	8	39	0.013	8	39	0.003	8	39	0.016
16:00 - 17:00	8	39	0.029	8	39	0.000	8	39	0.029
17:00 - 18:00	8	39	0.023	8	39	0.000	8	39	0.023
18:00 - 19:00	8	39	0.000	8	39	0.000	8	39	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.103			0.103			0.206

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLE OCCUPANTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.104	8	39	0.445	8	39	0.549
08:00 - 09:00	8	39	0.185	8	39	0.614	8	39	0.799
09:00 - 10:00	8	39	0.188	8	39	0.247	8	39	0.435
10:00 - 11:00	8	39	0.162	8	39	0.214	8	39	0.376
11:00 - 12:00	8	39	0.221	8	39	0.201	8	39	0.422
12:00 - 13:00	8	39	0.211	8	39	0.214	8	39	0.425
13:00 - 14:00	8	39	0.201	8	39	0.221	8	39	0.422
14:00 - 15:00	8	39	0.205	8	39	0.182	8	39	0.387
15:00 - 16:00	8	39	0.425	8	39	0.218	8	39	0.643
16:00 - 17:00	8	39	0.386	8	39	0.198	8	39	0.584
17:00 - 18:00	8	39	0.562	8	39	0.153	8	39	0.715
18:00 - 19:00	8	39	0.328	8	39	0.166	8	39	0.494
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.178			3.073			6.251

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.016	8	39	0.062	8	39	0.078
08:00 - 09:00	8	39	0.039	8	39	0.088	8	39	0.127
09:00 - 10:00	8	39	0.019	8	39	0.078	8	39	0.097
10:00 - 11:00	8	39	0.049	8	39	0.029	8	39	0.078
11:00 - 12:00	8	39	0.036	8	39	0.023	8	39	0.059
12:00 - 13:00	8	39	0.036	8	39	0.029	8	39	0.065
13:00 - 14:00	8	39	0.058	8	39	0.032	8	39	0.090
14:00 - 15:00	8	39	0.055	8	39	0.042	8	39	0.097
15:00 - 16:00	8	39	0.075	8	39	0.078	8	39	0.153
16:00 - 17:00	8	39	0.075	8	39	0.042	8	39	0.117
17:00 - 18:00	8	39	0.075	8	39	0.039	8	39	0.114
18:00 - 19:00	8	39	0.045	8	39	0.013	8	39	0.058
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.578			0.555			1.133

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL BUS/TRAM PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.000	8	39	0.016	8	39	0.016
08:00 - 09:00	8	39	0.000	8	39	0.003	8	39	0.003
09:00 - 10:00	8	39	0.000	8	39	0.003	8	39	0.003
10:00 - 11:00	8	39	0.000	8	39	0.006	8	39	0.006
11:00 - 12:00	8	39	0.000	8	39	0.000	8	39	0.000
12:00 - 13:00	8	39	0.000	8	39	0.000	8	39	0.000
13:00 - 14:00	8	39	0.000	8	39	0.000	8	39	0.000
14:00 - 15:00	8	39	0.003	8	39	0.000	8	39	0.003
15:00 - 16:00	8	39	0.003	8	39	0.003	8	39	0.006
16:00 - 17:00	8	39	0.013	8	39	0.003	8	39	0.016
17:00 - 18:00	8	39	0.006	8	39	0.000	8	39	0.006
18:00 - 19:00	8	39	0.010	8	39	0.000	8	39	0.010
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.035			0.034			0.069

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.000	8	39	0.000	8	39	0.000
08:00 - 09:00	8	39	0.000	8	39	0.003	8	39	0.003
09:00 - 10:00	8	39	0.000	8	39	0.003	8	39	0.003
10:00 - 11:00	8	39	0.000	8	39	0.000	8	39	0.000
11:00 - 12:00	8	39	0.000	8	39	0.000	8	39	0.000
12:00 - 13:00	8	39	0.000	8	39	0.003	8	39	0.003
13:00 - 14:00	8	39	0.000	8	39	0.000	8	39	0.000
14:00 - 15:00	8	39	0.000	8	39	0.000	8	39	0.000
15:00 - 16:00	8	39	0.000	8	39	0.000	8	39	0.000
16:00 - 17:00	8	39	0.000	8	39	0.000	8	39	0.000
17:00 - 18:00	8	39	0.003	8	39	0.000	8	39	0.003
18:00 - 19:00	8	39	0.003	8	39	0.000	8	39	0.003
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.006			0.009			0.015

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PUBLIC TRANSPORT USERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.000	8	39	0.016	8	39	0.016
08:00 - 09:00	8	39	0.000	8	39	0.006	8	39	0.006
09:00 - 10:00	8	39	0.000	8	39	0.006	8	39	0.006
10:00 - 11:00	8	39	0.000	8	39	0.006	8	39	0.006
11:00 - 12:00	8	39	0.000	8	39	0.000	8	39	0.000
12:00 - 13:00	8	39	0.000	8	39	0.003	8	39	0.003
13:00 - 14:00	8	39	0.000	8	39	0.000	8	39	0.000
14:00 - 15:00	8	39	0.003	8	39	0.000	8	39	0.003
15:00 - 16:00	8	39	0.003	8	39	0.003	8	39	0.006
16:00 - 17:00	8	39	0.013	8	39	0.003	8	39	0.016
17:00 - 18:00	8	39	0.010	8	39	0.000	8	39	0.010
18:00 - 19:00	8	39	0.013	8	39	0.000	8	39	0.013
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.042			0.043			0.085

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	39	0.123	8	39	0.542	8	39	0.665
08:00 - 09:00	8	39	0.224	8	39	0.737	8	39	0.961
09:00 - 10:00	8	39	0.208	8	39	0.344	8	39	0.552
10:00 - 11:00	8	39	0.211	8	39	0.266	8	39	0.477
11:00 - 12:00	8	39	0.260	8	39	0.234	8	39	0.494
12:00 - 13:00	8	39	0.253	8	39	0.250	8	39	0.503
13:00 - 14:00	8	39	0.276	8	39	0.263	8	39	0.539
14:00 - 15:00	8	39	0.273	8	39	0.224	8	39	0.497
15:00 - 16:00	8	39	0.516	8	39	0.302	8	39	0.818
16:00 - 17:00	8	39	0.503	8	39	0.244	8	39	0.747
17:00 - 18:00	8	39	0.669	8	39	0.192	8	39	0.861
18:00 - 19:00	8	39	0.386	8	39	0.179	8	39	0.565
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.902			3.777			7.679

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Appendix 10: Email from Ruth Hall, Wessex Water, dated 11th October 2018

On 11 Oct 2018, Ruth Hall wrote:

Hello Sian

Thank you for the opportunity to comment on the draft policies.

We would like to suggest alternative policy wording for IT2: Foul Water Drainage. The current wording at present raises a couple of concerns as there may be certain circumstances when it is not appropriate for development to connect to the public network. On the later point as the statutory undertaker we are required to provide new development with a connection if requested. As such the inspector is likely to consider the requirement that development wait until we have completed works unreasonable.

Please see proposed wording attached.

Regards

Ruth

Ruth Hall
Planning Liaison

e-mail:
Web: www.wessexwater.co.uk

From: Martin Tidman
Sent: 11 October 2018 15:45
To: sian Burke-Murphy
Cc: Stuart Miles; Ruth Hall
Subject: RE: Crudwell NP - Drainage and Sewage policies

Dear Sian,

Thank you for your email.

I have sat down this afternoon with Ruth Hall who is the Senior Planning Liaison Engineer and we have agreed that I will comment on the technical points and she will comment on points relating to Planning Liaison.

My comments are:

Drainage and Flooding

Para 7 – Any sewers or manholes found to be leaking will be included in ~~our~~ the sewer sealing programme to reduce surcharging in the foul sewer network.

Surface Water Drainage

Para 4:

2. Discharge into the ground via infiltration

5. Wessex Water do not have any combined sewers in Crudwell. We have separate foul and (limited) surface water systems.

Regards,

Martin Tidman
Wessex Water

Attachment:

Policy IT2: Foul Water Drainage

For the majority of developments, discharge to the public sewer network will be the most suitable means of foul drainage. Flow rates to the sewer from the development must be agreed with the sewerage undertaker (Wessex Water). If alternative foul drainage arrangements are proposed (such as septic tanks or cess pit), the developer should identify in their planning application why this is appropriate.

Should improvements be required to the existing public sewer network to allow the site to be served, the developer should engage with the sewerage undertaker early in the process to allow capacity improvements to be delivered.

Appendix 11: What should we ask a developer to fund re equipped play facilities from Tuners Land development, October 2018

What should we ask a developer to fund re. equipped play facilities from Tuners Lane development

1. Background

Strategic Objective 6 of the Wiltshire Core Strategy focuses on "ensuring that adequate infrastructure is in place to support our communities"

Core Policy 3 sets out the council's approach to the delivery of physical, social and green infrastructure requirements to support new development. This includes the securing of developer contributions to help fund infrastructure.

The open spaces study clearly identifies that there are needs for new and/or enhanced open space provision particularly where new development is planned.

From our housing needs assessment, we are proposing through the Neighbourhood plan that we need 20-25 houses until 2026. The proposed site for this is on Tuners lane.

2. Standards for space:

The open spaces report specifies for developments of 20 – 49 dwellings the minimum size of amenity green space should be 0.1Ha (but no on site play facilities for children or youth).

It says that provision of open space will be required as part of new development in towns or parishes **where there are existing deficiencies in quantity** or access to open space and/**or where the new development will result in deficiencies**

Where on-site provision of facilities is deemed impractical, or not required, it states consideration will be given to opportunities for off-site provision through pooling of S106 contributions in line with policy. OS11 The priorities for new provision are for **teenage facilities** and **improving access to the countryside via the rights of way network**.

3. Accessibility

It is important that younger children have access to some kind of play space within easy walking distance from home and that teenagers have access to spaces to hang out independently with friends.

In terms of accessibility for rural areas, **Play Space** (Children and Youth) the standard should be within **600 metres** or **12-13 minutes' walk time**

Table 10: Rural Areas standards of formal provision

Typology	Quantity standards (ha/1000 population)	Access standard
Allotments	0.25 (for new provision)	480 metres or 10 minutes' walk time
Recreation Space	3.00 to include both public and private grounds (excluding education sites)	600 metres or 12-13 minutes' walk time
Play Space (Children and Youth)	0.07	600 metres or 12-13 minutes' walk time

Per 1000 people in rural areas, **Recreation Space** should be 3.00 hectares to include both public and private grounds (excluding education sites) and 600 metres or 12-13 minutes' walk time.

The Natural England Accessible **Natural Greenspace** standard is that no person should live more than 300m from their nearest area of natural greenspace of at least 2ha in size.

4. Existing play/recreational space and considerations

The main recreational facilities in the parish are currently located at the village hall in Crudwell and consist of:

- Playing field including basic football pitches and a goal
- Enclosed children's play area – wooden climbing frames for older and younger children, swings, roundabout, spinner, seesaw for young children
- Outdoor gym
- Tennis court

An additional 20-25 houses could mean 50 to 65[3] additional residents. Consideration should be given to the impact this would have on it's use, the quantity of equipment for the increase and where there are already gaps in provision.

5. What should be funded

There are some key points from the study concerning deficiencies generally:

- It is the areas' rights of way and it's countryside, country parks and woodlands that are most commonly used by households at least monthly (over 76%).
- Over 64% of households also use parks, recreation grounds and informal open spaces e.g. grassed areas for dog-walking, picnics at least monthly
- Rights of way are also by far the most frequently used facility with 40% of households reporting using them almost every day.

- The most commonly identified shortfall was for provision of teenage facilities where 59% thought there was insufficient currently

The areas of most common concern highlighted in the study by Town/Parish Councils are:

- **Not enough areas for teenagers** e.g. skateparks, shelters etc.
- **The quality of children's play areas** (quantity issues less common).
- **The need for more and better access to rights of way.**
- **A lack of and the poor quality of football pitches; tennis courts (quality mainly); and MUGAs (primarily a lack of).**
- A need for more allotments
- Many Councils highlight that there should also be **good footpath and cycleway links** to and between them

4.6 Children and Young People - Key Findings There is a widespread view from stakeholders specifically on the need for more **skateparks** across Wiltshire.

Also highlighted:

- the need for play spaces to provide more **challenging and adventurous play** opportunities, particularly for older children.
- the importance and value of the provision of **unequipped "playable" natural green** space for informal nature and "wild" play in addition to equipped formal play spaces.

[3] https://www.nomisweb.co.uk/ shows that in 2011 Census Crudwell parish's average household size was 2.54 people (1,057 residents/415 dwellings)

Table 22 provides an indicative guide to assess which scales of housing generate a need for facilities in the categories listed to be provided on-site.

Table 22 Requirement for open space, sport and recreation facilities

Type of Provision	1-19 dwellings	20-49 dwellings	50-99 dwellings	100+ dwellings
Allotments	X	X	✓	✓
Amenity Green Space	X	✓	✓	✓
Parks Sports and Recreation Grounds	X	✓	✓	✓
Play Space (children)	X	X	✓	✓
Play Space (Youth)	X	X	✓	✓
Recreation Space (Rural)	X	✓	✓	✓
Play Space (Rural)	X	X	✓	✓

KEY: ✓ on-site provision normally sought
X off-site provision normally required

Developer cost contribution
The below table shows that that for play space (children's and youth provision), the contribution should be £119 per person or 0.7m2. This shows that it costs £1,193 per person to provide new open space to meet the Wiltshire standard for open space.

Table 19 Costs for providing open space

Typology	Standard (m^2) per person	Cost of provision	
		Cost / m^2	Contribution per person
Allotments	2.0	£30.00	£60.00
Play Space (Children's and Youth Provision)	0.7	£170.00	£119.00
Parks and Recreation grounds	12.0	£72.00	£864.00
Amenity/Natural green space	10.0	£15.00	£150.00
Total	**24.7**		**£1,193**

These calculations are to be used to calculate developer contributions for on-site provision and where feasible any off site projects.

Conclusion

Location
Locating improved facilities at the village hall site - over creating these on a new development site is favoured for the following reasons:

- Community cohesion – one site provides a central place for community to meet and children/young people to make friends – helping combat isolation
- Supports village hall as a charity funded community facility - improved facilities there will encourage use/keep viable
- Within short walking distance from proposed site
- Area is maintained by Parish Council -easier long term to maintain one area/maximise maintenance budget (assume developer would maintain for a contract period of one year)
- Existing car park - for those further out of the parish

Developer contribution of £119/person -so likely £5,950 to £7,735 could be spent enhancing facilities here to support the increased population.

It could be used to support areas highlighted from Wiltshire's study of deficiencies where they align with community feedback from initial engagement. For example funding/helping to fund:

- Adding to and/or improving play equipment, particularly for older children or teenagers
    - skate park
    - all weather table tennis tables
    - Zipwire
- Football pitch/tennis court improvement
- Teenager shelter/meeting area
- Seating and landscaping
- Footpath/right of way across from the development

Appendix:

3.2 National Strategic Context

3.2.1 National Planning Policy Framework In April 2012, the National Planning Policy Framework (NPPF) was published and previous planning guidance related to open space (PPG17 – Planning for Open Space, Sport and Recreation and Companion Guide) was archived in March 2014 The NPPF sets out the Government's planning policies for England and how they should be applied. The NPPF must be adhered to in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions.

The NPPF contains the following references that relate to green infrastructure and open spaces: Achieving Sustainable Development - Core Planning Principles: Para 17: Within the overarching roles that the planning system ought to play, a set of core land-use planning principles should underpin both plan-making and decision-taking, these 12 principles include: DRAFT Wiltshire Open Space Study 20 • promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions (such as for wildlife, **recreation**, flood risk mitigation, carbon storage, or food production); • actively manage patterns of growth to **make the fullest possible use of public transport, walking and cycling**, and focus significant development in locations which are or can be made sustainable; and • take account of and support local strategies to improve **health, social and cultural wellbeing** for all, and deliver sufficient community and cultural facilities and services to meet local needs. Para 58 - Local and neighbourhood plans should develop robust and comprehensive policies that set out the quality of development that will be expected for the area. Such policies should be based on stated objectives for the future of the area and an understanding and evaluation of its defining characteristics. Planning policies and decisions should aim to ensure that developments: • optimise the potential of the site to accommodate development, create and sustain an appropriate mix of uses (including incorporation of green and other public space as part of developments) and support local facilities and transport networks. • create safe and accessible environments where crime and disorder, and the fear of crime, do not undermine quality of life or community cohesion; and • are visually attractive as a result of good architecture and appropriate landscaping. Para 73 - Access to high quality open spaces and opportunities for sport and recreation can make an important contribution to the health and well-being of communities. Planning policies should be based on robust and up-to-date assessments of the needs for open space, sports and recreation facilities and opportunities for new provision. The assessments should identify specific needs and quantitative or qualitative deficits or surpluses of open space, sports and recreational facilities in the local area. Information gained from the assessments should be used to determine what open space, sports and recreational provision is required. Para 75 - Planning policies should protect and enhance public rights of way and access.

Quantity

Within the study report, for each typology, there is an identified 'sufficient supply' or 'under supply' for each of the urban and rural analysis areas. If an area has an existing under supply of any typology, there may be need for additional provision. This could be **delivered through developing a new site** (for example as part of a housing development), acquiring land to extend the site or **changing the typology of an existing space** (which may be in over supply).

The supply statistics should be used as part of the decision making process in development management to determine if a new development should provide facilities on-site or enhance existing provision through developer contributions.

The use of the quantity statistics should not be in isolation, and considered alongside the access standards.

Access

This study considers how access to different types of open space varies across parishes against the proposed standards. The maps show where there are deficiencies and potential over supply of facilities. This information can be used alongside the quantity statistics to determine if new provision or improved accessibility is required in an area. For example, if a new development is proposed, the maps should be consulted to determine if there is an existing gap in provision of a particular typology which could be met by the development. Therefore, even though the quantity statistics may identify a sufficient supply of a particular typology, there may be gaps in access, and thus a new facility may still be required.

New development, CIL and developer contributions

Wiltshire Council have submitted their draft charging schedule and policy for the Community Infrastructure Levy (CIL) to the Planning Inspectorate for consideration. Many community needs and aspirations which will have a call on this levy. This open space study clearly identifies that there are needs for new and /or enhanced open space provision, particularly where new development is planned.

Appendix 12: SEA Screening Determination for the Draft Crudwell Neighbourhood Plan, November 2018

Wiltshire Council

Strategic Environmental Assessment

Screening determination for the Draft Crudwell Neighbourhood Plan

November 2018

Wiltshire Council
Where everybody matters

Contents Page

1. Introduction

1.1 This document provides a screening determination of the need to carry out a Strategic Environmental Assessment (SEA) of the draft Crudwell Neighbourhood Plan (NP).

1.2 Wiltshire Council, as the 'Responsible Authority'[1] under the SEA Regulations[2], is responsible for undertaking this screening process. It will determine if the Plan is likely to have significant environmental effects, and hence whether SEA is required.

1.3 This process has been carried out in accordance with the requirements of European Directive 2001/42/EC[3], often known as the Strategic Environmental Assessment (SEA) Directive, which has been transposed into English law by the SEA Regulations.

2. Legislative requirements

2.1 The Localism Act 2011 requires neighbourhood plans to comply with EU legislation. The screening procedure outlined in this report meets the requirements of the SEA Directive and Regulations, as introduced in Section 1 of this document.

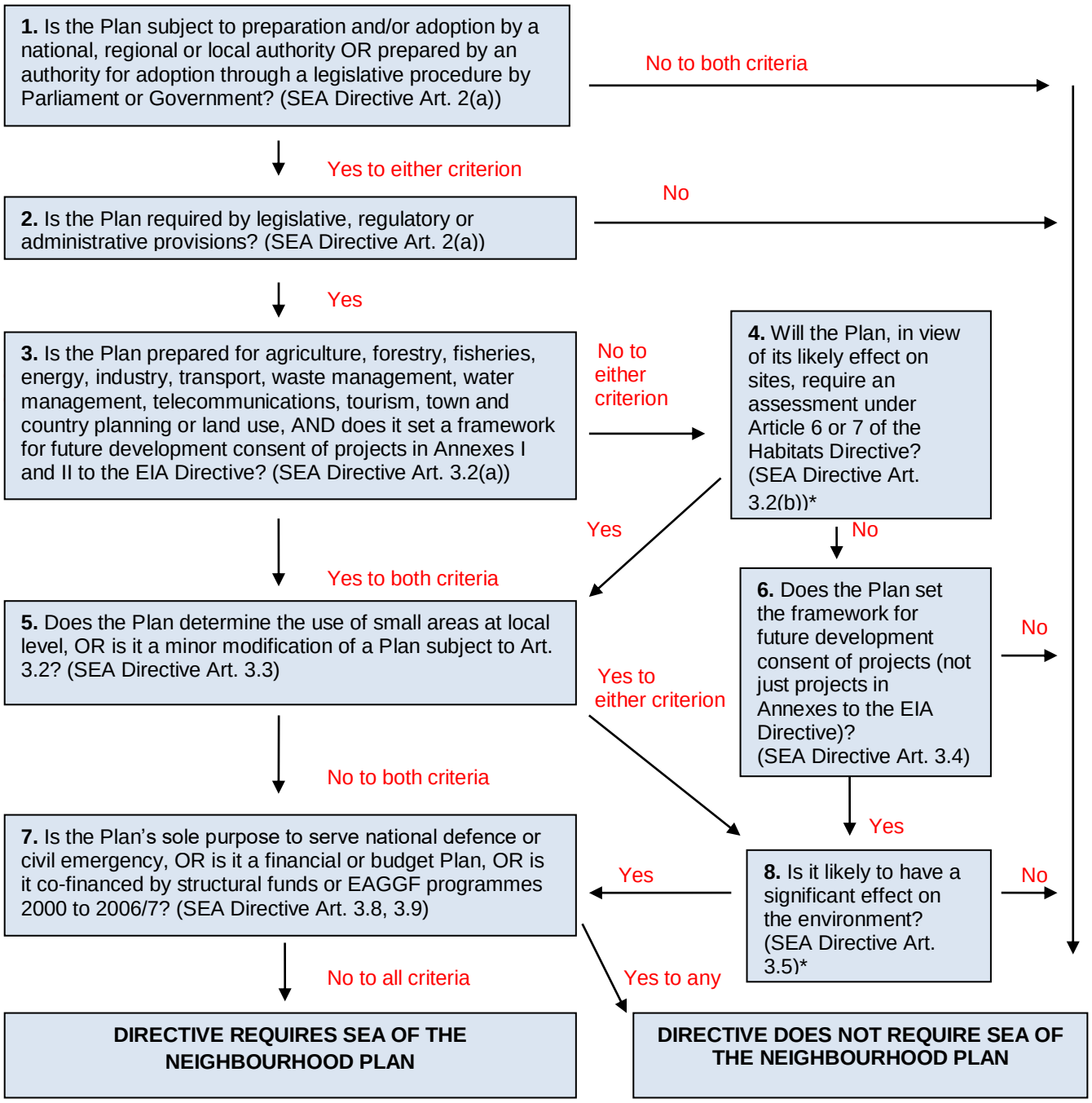
2.2 Regulation 5 of the SEA Regulations requires an environmental assessment of plans which:

1. *are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use (Regulation 5, para. (2)(a),* ***and*** *which set the framework for future development consent of projects listed in Annex I or II to Council Directive 85/337/EEC (EIA Directive) on the assessment of the effects of certain public and private projects on the environment* (Reg. 5, para. (2)(b)
2. *in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of the Habitats Directive (92/43/EEC)* (Reg. 5, para. (3)
3. *set the framework for future development consent of projects*[4] (Reg. 5, para. (4)(b)
4. *are determined to be likely to have significant environmental effects as determined under regulation 9(1*) (Reg. 5, para. (4)(c)

An environmental assessment need not be carried out for:
a) *plans which determine the use of a small area*[5] *at local level* (Regulation 5, para. (6)(a); or b) *plans which are a minor modification*[6] *to a plan or programme* (Regulation 5, para. (6)(b) unless it has been determined under regulation 9(1) that the plan is likely to have significant environmental effects.

[1] The organisation which adopts the neighbourhood plan (this is described in Wiltshire Council's guide *Neighbourhood planning – a guide for Wiltshire's parish and town councils* (June 2012) as 'makes the plan').
[2] The Environmental Assessment of Plans and Programmes Regulations 2004
[3] European Directive 2001/42/EC "*on the assessment of the effects* of *certain plans and programmes on the environment"*
[4] European Commission guidance states that plans and programmes which set the framework for future development consent of projects would normally contain 'criteria or conditions which guide the way a consenting authority decides an application for development consent'. Development consent is defined in the EIA Directive as "the decision of the competent authority or authorities which entitled the developer to proceed with the project" (Article 1(2) of the EIA Directive).
[5] European Commission guidance suggests that plans which determine the use of small areas at local level might include "a building plan which, for a particular, limited area, outlines details of how buildings must be constructed, determining, for example, their height, width or design"
[6] 'Minor modifications' should be considered in the context of the plan or programme which is being modified and of the likelihood of their having significant environmental effects. A modification may be of such small order that it is unlikely to have significant environmental effects.

2.3 The diagram[7] below shows the SEA Directive's requirements and its application to neighbourhood plans:



* Plans falling in this category (No.8) will be screened by Wiltshire Council to determine if they are likely to have significant environmental effects. This determination will be made on a case by case basis for neighbourhood plans coming forward in Wiltshire.

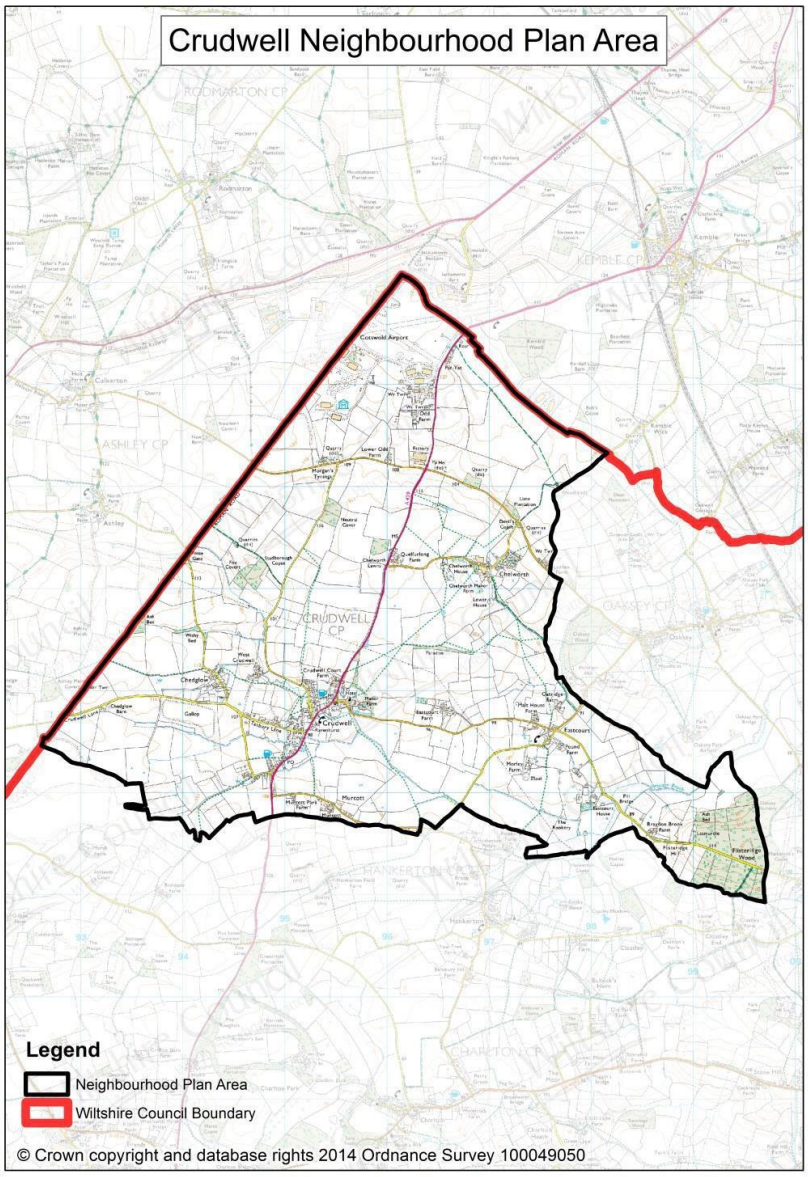
NB This diagram is intended as a guide to the criteria for application of the Directive to neighbourhood plans. It has no legal status.

[7] Taken from *A Practical Guide to the Strategic Environmental Assessment Directive* ODPM, 2005)

3. The Draft Crudwell Neighbourhood Plan (NP)

3.1 The parish of Crudwell is preparing a NP under the provisions of the Localism Act 2011.

3.2 The designation of the Crudwell Neighbourhood Area was made on 20th March 2015 (see map of area outlined in blue below). For the designation notice see http://www.wiltshire.gov.uk/planning-neighbourhood-latest-news



3.3 The consultation on this screening decision was accompanied by a report dated August 2018 that sets out some initial proposals that are intended to be included in a first draft of the Crudwell NP. This was produced to inform the SEA screening decision. These draft proposals have not been finalised, but they give an indication of the proposed policies and housing site allocation.

3.4 There was also an accompanying Heritage Appraisal produced by JME Conservation Ltd that assesses two potential development sites in Crudwell to identify whether development would be likely to result in significant environmental effects on heritage

assets such that an SEA would be required. The scope of this assessment was therefore to identify whether any heritage assets or their settings would be affected by development on the identified sites.

3.6 It has been confirmed by the NP steering group that they intend to allocate one site for housing in the Plan, for between 20-25 dwellings. This is identified in a report entitled '*Crudwell Neighburhood Plan Report to inform Strategic Environmental Assessment Screening'* as *'Site J Tuners Lane'*. The proposed policy for this site is as follows:

"Policy DD1: Tuners Lane

A site of 1.3 hectares at Tuners Lane as identified on the policies map is allocated for a residential development of 20 to 25 dwellings.

Development proposals must:

a) Provide for the completion of the footpath along Tuners Lane from the site to the A429;
b) Demonstrate that as much of the hedgerow fronting Tuners Lane is retained as is practicable, in relation to both the location of the access and visibility splays. Where any hedgerow is lost as a result of visibility splays, it must be reprovided immediately outside the splay;
c) Provide a landscaped boundary to the site on its western and northern boundary;
d) Demonstrate compliance with (drainage policy);
e) Demonstrate compliance with the Crudwell Design Code."

3.7 The steering group have confirmed that they do not intend to include a policy in the Plan on exception sites for self-build housing, as set out in paragraph 4.34 of that report.

3.8 The only other proposed policy that is considered to have the potential to cause significant environmental effects is the policy on windfall housing, identified in paragraph 4.33 of that report. The proposed policy is as follows:

"Policy DD2; Windfall Housing

In addition to housing to be delivered by policy DD1, applications for residential developments on windfall sites within the Crudwell village Settlement Boundary, identified on the policies map will be supported where such development:

a) Reflects the character and scale of surrounding properties and of the village of Crudwell in terms of scale, form and layout; and
b) Is of a high design quality in accordance with policy DD3; and
c) Provides safe vehicular access to the highway network; and
d) Provides safe pedestrian access to facilities within Crudwell village; and
e) Respects the amenity of neighbours; and
f) Demonstrably meets an identified need for homes in Crudwell, for example:

i. affordable housing;
ii. housing for the elderly;
iii. housing proposed to be developed by people who wish to build or commission their own home (self-build housing);
iv. holiday accommodation."

4. SEA Screening assessment

4.1 Wiltshire Council, as the 'Responsible Authority', considers that the draft Crudwell NP falls within the scope of the SEA Regulations on the basis that it is a plan that:

a) is subject to preparation or adoption by an authority at national, regional or local level (Regulation 2);

b) is prepared for town and country planning or land use and it is a plan that sets the framework for future development consent of projects generally (Regulation 5, para. 4); and

c) will apply to a wider area other than a small area at local level and is not a minor modification to an existing plan or programme (Regulation 5, para. 6).

4.2 A determination under Regulation 9 is therefore required as to whether the draft Crudwell NP is likely to have significant effects on the environment.

4.3 The screening requirements set out in Regulation 9 and Schedule 1 of the SEA Regulations includes two sets of characteristics for determining the likely significance of effects on the environment. These relate to i) the characteristics of the draft Crudwell NP and ii) the characteristics of the effects and of the area likely to be affected by the draft Crudwell NP. In making a determination, Wiltshire Council will take into account the criteria specified in Schedule I of the Regulations as follows:

1. The characteristics of the plans and programmes, having regard in particular to:

(a) the degree to which the plan or programme sets a framework for projects and other activities, either with regard to the location, nature, size and operating conditions or by allocating resources;

(b) the degree to which the plan or programme influences other plans and programmes including those in a hierarchy;

(c) the relevance of the plan or programme for the integration of environmental considerations in particular with a view to promoting sustainable development;

(d) environmental problems relevant to the plan or programme; and

(e) the relevance of the plan or programme for the implementation of Community legislation on the environment (for example, plans and programmes linked to waste management or
water protection).

2. Characteristics of the effects and of the area likely to be affected, having regard, in particular, to:

(a) the probability, duration, frequency and reversibility of the effects;

(b) the cumulative nature of the effects;

(c) the transboundary nature of the effects;

(d) the risks to human health or the environment (for example, due to accidents);

(e) the magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected);

(f) the value and vulnerability of the area likely to be affected due to—

(i) special natural characteristics or cultural heritage;
(ii) exceeded environmental quality standards or limit values; or
(iii) intensive land-use; and

(g) the effects on areas or landscapes which have a recognised national, Community or international protection status.

The screening assessment of the draft Crudwell NP is set out below:

Criteria (Schedule 1 SEA Regs.)	Significant environmental effects likely?	Justification and evidence
1. The characteristics of plans, having regard, in particular, to:		
(a) the degree to which the plan sets a framework for projects and other activities, either with regards to the location, nature, size and operating conditions or by allocating resources	No	The neighbourhood plan covers the Crudwell parish area only. Whilst the draft Plan does set a framework for projects at the parish level, it is not considered that the draft Plan sets a framework for a significant degree of projects or other activities.
(b) the degree to which the plan influences other plans and programmes including those in a hierarchy	No	The draft NP is produced by the local community to influence development at the local parish level. It is not considered that the draft Plan will have a significant influence on other plans and programmes or those in a hierarchy. All neighbourhood plans must be in general conformity with the strategic policies contained in the development plan for the area, contribute to the achievement of sustainable development and have regard to national policies.
(c) the relevance of the plan for the integration of environmental considerations, in particular with a view to promoting sustainable development	No	The draft NP is a land-use plan that promotes sustainable development, in general conformity with the Local Plan and national planning guidance. It is not a Plan specifically relating to the integration of environmental considerations. Environmental considerations are taken into account in the draft Plan with objectives that seek to: i. protect the local landscape characteristics ii. protect and maintain green spaces and natural environment iii. protect the Conservation Area iv. preserve and improve recreational open spaces v. promotion and enablement of recycling and waste reduction vi. explore and exploit opportunities for green build standards, renewable energy
(d) environmental problems relevant to the plan	No	There are no known specific environmental problems relevant to this Plan. The neighbourhood area is rural and mainly agricultural with the one main settlement being Crudwell which is designated as a ‘Large Village’ in the Wiltshire Core Strategy (WCS).

(e) the relevance of the plan for the implementation of Community legislation on the environment (for example, plans and programmes linked to waste management or water protection)	No	The NP is not relevant as a plan for implementing community legislation.
2. Characteristics of the effects and of the area likely to be affected, having regard, in particular, to:		
(a) the probability, duration, frequency and reversibility of the effects	No	It is considered that the elements of the proposals most likely to have significant environmental effects are the policies that support development at Crudwell. The policy outlined above on windfall sites is in general conformity with the Wiltshire Core Strategy which allows for small-scale development within the settlement boundary of 'Large Villages'. The proposed policy does not introduce any additional elements that would be likely to have significant environmental effects. No specific development sites are identified by the policy. The draft NP proposes a preferred option of the delivery of between 20 to 25 dwellings to meet an identified local housing need, to be located at the village of Crudwell. Site J 'Tuners Lane' is suggested to be the most sustainable and is the preferred site for accommodating 20-25 dwellings. **Site J 'Tuners Lane'** The site is predominantly surrounded by open pasture land with a modern housing development adjacent to the eastern boundary. The site is currently in arable use. There are no biodiversity or landscape designations within or adjacent to the site. The eastern boundary of the Cotswolds AONB is approx. 2km to the west of this site. The stream which runs to the south west of the site is UK BAP Priority Habitat because it is running water and a natural watercourse, however it is on the opposite side of the road and is unlikely to be directly affected by development of the proposed site. No areas of ancient woodland are within close proximity of the site. It has been concluded by Wiltshire Council's ecology team that the proposals will not require an Appropriate Assessment under the Habitats Regulations. The Landscape Character of this site falls within the Limestone Lowland typology. It is of moderate character, in good condition. Any future planning application would need to make provision for strengthening the character and appearance in this area. The site is of a size whereby landscape mitigation could be employed at the site boundaries to reduce the effect. There are hedgerows present on site which could be extended for

		further screening given the location of the site on the rural fringe. The site is within Flood Zone 1 with areas of Flood Zone 2 and 3 to the south of Tuners Lane. There are a number of watercourses in close proximity to this site and there have been flooding issues in Crudwell in the past and future development will need to demonstrate no increase in flood risk potential to these downstream areas. The site is also within Groundwater Source Protection Zone 1 and further advice would need to be sought from the Environment Agency. However, there is no evidence to suggest that development of the site for housing is not capable of being supported by adequate water and sewerage infrastructure capacity. The site is located to the north and west of the Crudwell Conservation Area from which it is separated by open farm land and modern housing development. There are no listed buildings in close proximity to this site. See attached Heritage Appraisal by JME Conservation Ltd. This assessment states that '*whilst the Tuners Lane site will be locally prominent, it is not considered that development on this site would affect the setting or significance of any Designated or Non-designated Heritage Assets.'* It concludes that '*development of this site will not affect the settings or special significance of any heritage assets. Whilst the boundary of the Conservation Area is distantly visible from the site this is an area of modern housing and it is not considered that these views will affect the special significance of this part of the Crudwell Conservation Area.'* Considering all likely environmental effects of the proposed policies, it is not considered that significant effects are likely.
(b) the cumulative nature of the effects	No	No specific cumulative effects of the proposals are considered likely.
(c) the transboundary nature of the effects	No	No transboundary effects with other EU countries are considered likely to be significant.
(d) the risks to human health or the environment (for example, due to accidents)	No	There are no significant environmental effects considered likely to risk human health or the environment.
(e) the magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected)	No	The NP covers a rural parish which includes the 'Large Village' of Crudwell. The 2011 Census records 1057 people living in the parish. The parish covers an area of approx. 7.6 miles^2. Significant environmental effects due to the geographic size of the area and population size are not considered likely.

(f) the value and vulnerability of the area likely to be affected due to— (i) special natural characteristics or cultural heritage; (ii) exceeded environmental quality standards or limit values; or (iii) intensive land-use;	No	Refer to 2a above. It is not considered that the draft Plan will have significant environmental effects due to exceeded environmental quality standards or limit values or intensive land-use.
(g) the effects on areas or landscapes which have a recognised national, Community or international protection status.	No	Refer to 2a above.

5. SEA Screening decision

5.1 Regulation 9 of the SEA Regulations requires that the responsible authority (Wiltshire Council) shall determine whether or not a plan is likely to have significant environmental effects. The responsible authority shall —

(a) take into account the criteria specified in Schedule 1 to these Regulations; and
(b) consult the consultation bodies (Historic England, Natural England, Environment Agency).

5.2 Where the responsible authority determines that the plan is unlikely to have significant environmental effects (and, accordingly, does not require an environmental assessment), it shall prepare a statement of its reasons for the determination.

5.3 Wiltshire Council considers that the draft Crudwell Neighbourhood Plan (NP) **is not likely to have significant environmental effects** and accordingly **a Strategic Environmental Assessment is not required.** This decision is made for the following key reasons:

1. The proposed policies are not considered likely to have significant environmental effects.

2. The proposed windfall sites policy is in general conformity with the Wiltshire Core Strategy which allows for small-scale development within the settlement boundary of 'Large Villages'. The proposed policy does not allocate specific sites for development and does not introduce any additional elements that would be likely to have significant environmental effects.

3. The proposed housing site allocation 'Tuners Lane' is within Flood Zone 1 and although within a Groundwater Source Protection Zone, there is no evidence to suggest that development of the site for housing is not capable of being supported by adequate water and sewerage infrastructure capacity.

4. The proposed housing site allocation is unaffected by any biodiversity or landscape designations and development of the site is unlikely to affect the settings or special significance of any heritage assets.

5. It has been concluded by Wiltshire Council's ecology team that the proposals will not require an Appropriate Assessment under the Habitats Regulations.

5.4 This SEA screening has been undertaken on a report outlining initial proposals to inform the SEA screening. It is possible that these proposals may change. If the draft Plan is subsequently amended significantly from these proposals i.e. changes that substantially alter the draft plan and/or are likely to give rise to additional significant environmental effects, or it is subsequently decided that the draft Plan should be subject to an Appropriate Assessment under the Habitats Regulations, this SEA screening must be reviewed. In this instance, the Qualifying Body should request a revised SEA screening assessment from Wiltshire Council.

6. Consultation on SEA screening decision

6.1 This SEA screening decision was sent to Natural England, Environment Agency and Historic England, requesting comments within a 5-week period, ending on 5th November 2018. Comments were received from Natural England and Historic England and these are presented in Appendix A to this report. Both organisations agreed with the Council's decision that an SEA is not required. The Environment Agency did not respond.

6.2 Historic England stated in their response that *'based on the information made available I can confirm that we have no objection to the opinion that an SEA is not required'*. However, regarding the Heritage Appraisal produced by JME Conservation Ltd, it stated '*we would…encourage your authority to seek the views of its conservation team to confirm the conclusions they suggest.'*

6.3 Wiltshire Council Senior Conservation Officer Guy Bentham-Hill was asked to provide his opinion on the JME Conservation Heritage Appraisal and he concluded that the proposed development within the draft Plan is likely to cause *'a low degree of harm that may be successfully mitigated by sensitive design and layout with appropriate landscape provision.'* Given this view, it is not considered necessary to change the original screening decision that an SEA is not required for the neighbourhood plan.

6.4 Guy Bentham-Hill's comments in full (email to Sophie Davies dated 20/11/18) are as follows:

'In general, the text from JME Conservation is comprehensive.

In terms of the findings of the report I would suggest that there is degree of minor harm to the setting of the heritage assets described as setting under current HE guidance is considered to not be contained by distance or inter-visibility but also perceived visibility and community appreciation.

The values of the assets described within the statement focus on the traditional values of historic and architectural values rather than communal and artistic values also mentioned within HE's Conservation Principles document which appear to be given less weight.

I would therefore suggest that rather than conclude as per the statement that development of the sites causes no harm to their significance of the heritage assets but a low degree of harm that may be successfully mitigated by sensitive design and layout with appropriate landscape provision.'

Appendix A - Statutory consultee responses to consultation on screening decision

Natural England – email dated 23/10/18

Dear David, many thanks for the above consultation.

We note that the Cotswolds AONB is some 1500m from the proposed development site (Turner's Lane). We have no information as to the landscape sensitivity of the development site in terms of potential impact on the AONB. However, bearing in mind the relatively flat topography of the area, any landscape impacts from any allocations are likely to be able to be mitigated through appropriate design.

We thus concur with the conclusion of the SEA screening report that a SEA is not required (as far as Natural England's remit is concerned).

Charles Routh
Lead Advisor, Planning & Licencing, Somerset, Avon and Wiltshire Area Team, Natural England. 07990 773630

Historic England – email dated 06/11/18

Dear David

Thank you for your consultation on the SEA screening for the emerging Crudwell Neighbourhood Plan.

Based on the information made available I can confirm that we have no objection to the opinion that an SEA is not required, subject to:

a) *There is little information on the actual proposed policy content of the Plan, the only specific and detailed reference being that of policy DD1 on p6 of the Screening Report. While this may be the only housing site allocation proposed there may be other forms of site allocation not referred to or which emerge, that require assessment in terms of their potential to generate likely significant environmental effects. In which case, a review of any Screening decision may be appropriate.*
b) *While the JME Conservation Ltd and Vision Planning reports seem comprehensive, our ability to verify the assertions they make concerning impacts on heritage assets is handicapped by a lack of local knowledge. We would therefore encourage your authority to seek the views of its conservation team to confirm the conclusions they suggest.*

Kind regards, David

David Stuart | Historic Places Adviser South West Direct Line: 0117 975 0680 | Mobile: 0797 924 0316 Historic England | 29 Queen Square | Bristol | BS1 4ND